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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/627,958	07/25/2003	James Darryl Browning	BAT 0021 V2/40078.232/B-1	2263

7590 02/25/2005

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EXAMINER	
FEELY, MICHAEL J	

ART UNIT	PAPER NUMBER
1712	

DATE MAILED: 02/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/627,958	BROWNING ET AL.	
	Examiner	Art Unit	
	Michael J. Feely	1712	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 July 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *1003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The abstract of the disclosure is objected to because it contains more than one paragraph. Correction is required. See MPEP § 608.01(b).

Claim Rejections – 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okuhira et al. (US Pat. No. 6,221,998)

Regarding claims 1, 7-23, and 27-29, Okuhira et al. disclose: ***(1)*** a method of making a blocked amine (column 7, line 22 through column 9, line 29; Synthesis Examples) comprising:

- mixing a solvent capable of forming an azeotrope with water, an amine, and an amine blocker selected from ketones and aldehydes in a reaction vessel to form a reaction mixture (column 9, lines 24-29);
- reacting the amine and the amine blocker to form the blocked amine and water of reaction (column 9, lines 24-29);
- removing the water of reaction from the reaction mixture while the amine and the amine blocker are reacted (column 9, lines 24-29); and
- recovering the blocked amine while maintaining the absence of moisture (column 9, lines 24-29);

(7) wherein the solvent capable of forming an azeotrope with water is capable of forming a binary or ternary azeotrope with water (column 9, lines 24-29);

(8) wherein the solvent capable of forming an azeotrope with water is selected from toluene, xylene and combinations thereof (column 9, lines 24-29)

(9) wherein the solvent capable of forming an azeotrope with water comprises toluene (column 9, lines 24-29)

(10) wherein the amine comprises a polyamine (column 9, lines 24-29)

(11) wherein the amine is selected from diethylenetriamine, m-xylylenediamine and combinations thereof (column 8, line 35 through column 9, line 24);

(12) wherein the amine comprises m-xylylenediamine (column 8, line 35 through column 9, line 24);

(13) wherein the amine blocker is a ketone (column 7, line 46 through column 8, line 11); *(14)* wherein the ketone has a molecular weight in the range of about 30 to about 600 (column 7, line 46 through column 8, line 11); *(15)* wherein the ketone contains between about 3 and 14 carbon atoms (column 7, line 46 through column 8, line 11); *(16)* wherein the ketone is selected from methyl isobutyl ketone, methyl ethyl ketone, acetone, phorone, heptanedione, tetramethylheptanedione, adamantone, acetonyl acetone, methylpropylketone and combinations thereof (column 7, line 46 through column 8, line 11); *(17)* wherein the ketone comprises methyl isobutyl ketone (column 7, line 46 through column 8, line 11);

(18) wherein the amine blocker is an aldehyde (column 7, line 46 through column 8, line 11); *(19)* wherein the aldehyde has a molecular weight in the range of about 30 to about 600 (column 7, line 46 through column 8, line 11); *(20)* wherein the aldehyde contains between about

2 and 14 carbon atoms (column 7, line 46 through column 8, line 11); ***(21)*** wherein the aldehyde is selected from benzaldehyde, salicylaldehyde and combinations thereof (column 7, line 46 through column 8, line 11); ***(22)*** wherein the aldehyde comprises benzaldehyde (column 7, line 46 through column 8, line 11);

(23) wherein the solvent capable of forming an azeotrope with water comprises toluene (column 9, lines 24-29), the amine comprises m-xylylenediamine (column 7, line 46 through column 8, line 11), and the amine blocker comprises methyl isobutyl ketone (column 7, line 46 through column 8, line 11);

(27) the product produced by the method of claim 1 (column 7, line 22 through column 9, line 29);

(28) with proviso that the blocked amine is not the reaction product of one or more compounds containing at least one epoxy group and one or more imines having at least one amino hydrogen (column 7, line 22 through column 9, line 29); and

(29) with the proviso that the blocked amine is not a heterocyclo-containing compound having a backbone chain selected from the group consisting of polyether, polyvinyl, polyester, polyamine, polycarbonate, and novolac chains and at least two heterocyclic groups of formula *see claims for chemical structure* (column 7, line 22 through column 9, line 29).

Okuhira et al. do not explicitly disclose the step of ***(1)*** initially removing ambient moisture from the reaction vessel. Rather, they disclose an azeotropic distillation process, wherein water is azeotropically removed from the reaction vessel as it is being produced. Since water is an undesired by-product of the reaction, it would only seem logical to initially reduce

the ambient moisture in the reaction vessel. Such a removal would have promoted an efficient reaction between the ketone/aldehyde and the polyamine.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to initially remove ambient moisture from the reaction vessel because water is an undesired by-product of the reaction. Such a removal would have promoted an efficient reaction between the ketone/aldehyde and the polyamine.

Regarding claims 2 and 3, Okuhira et al. do not explicitly disclose ***(2)*** wherein the water of reaction is removed for a length of time until a 100% theoretical water of reaction is removed from the reaction mixture; and ***(3)*** wherein the water of reaction is removed for a length of time until the water of reaction ceases to azeotrope. However, these limitations merely represent an optimization of the azeotropic distillation process. Furthermore, this level of water removal represents a mode of purification – *see MPEP 2144.04 VII.*

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to run the azeotropic distillation method of Okuhira et al. until 100% of the theoretical water is removed and water ceases to azeotrope because these steps merely represent an optimization of the distillation process wherein a purified product is produced.

Regarding claims 4-6, Okuhira et al. do not explicitly disclose: ***(4)*** further comprising heating the reaction mixture until the water of reaction is removed; ***(5)*** further comprising cooling the reaction mixture after the water of reaction has been removed; and ***(6)*** further comprising heating the reaction mixture and placing the reaction mixture under a vacuum after

the water of reaction has been removed. However, it appears that these process steps would have been inherently performed in the azeotropic distillation process of Okuhira et al.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to include the steps set forth in instant claim 4-6 in the process of Okuhira et al. because these process steps are inherently performed in their azeotropic distillation process.

Regarding claims 24-26, Okuhira et al. do not explicitly disclose: ***(24)*** wherein reaction yield is greater than about 90%; ***(25)*** greater than about 95%; and ***(26)*** greater than about 97% of theoretical yield. These yield values are merely an indicator of optimization of the azeotropic distillation process. Furthermore, efficient water removal promotes the reaction between the ketone/aldehyde and polyamine and in turn represents a mode of purification – *see MPEP 2144.04 VII.*

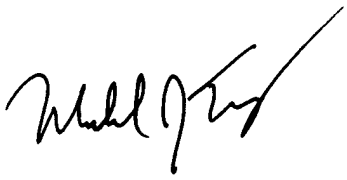
Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to run the azeotropic distillation method of Okuhira et al. until a theoretical yield of greater than about 90%, 95%, or 97% is achieved because this theoretical yield merely represents an optimization of the distillation process wherein a purified product is produced.

Communication

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J. Feely whose telephone number is 571-272-1086. The examiner can normally be reached on M-F 8:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Michael J. Feely
Patent Examiner
Art Unit 1712

February 22, 2005